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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/765,653

01/26/2004

Tim A. Renfro

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1211

8791 7590 01/05/2007
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EXAMINER

CLARK, SHEILA V

ART UNIT

PAPER NUMBER

2823

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

01/05/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/765,653

Applicant(s)

RENFRO ET AL.

Examiner

S. V. Clark

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,9 and 30-51 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 35-38 and 48-51 is/are allowed.
- 6) ☒ Claim(s) 1 and 39-41 is/are rejected.
- 7) ☒ Claim(s) 9,30-34 and 42-47 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sinsheimer et al.

Sinsheimer et al teaches in for example figure 1, forming a flexible non-electrically conductive membrane 110 with holes (see col.4, line 61, "apertures in the membrane") and from a land grid array 400 (see col. 2, line 23, membrane may have obvious use with land grid array devices) and attaching the membrane to the land grid array 400 (see figure 1) to permit electrical connection between the land grid array by way of LDA pad 100 and an IC device electrically coupled to LGD 400 (see col.4, line 3, 400 part of a semiconductor package not shown).

Though in the specifics of his invention Sinsheimer et references Ball Grid Array (BGA) devices Sinsheimer et al teaches in col. 4 that his device has obvious relationship to grid array devices such as land grid arrays (LGA).

Claims 39-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sinsheimer et al.

Sinsheimer et al teaches in for example figure 1, forming a flexible non-electrically conductive membrane 110 for a land grid array 400 (see col. 2, line 23, membrane may have obvious use with land grid array devices) incorporated with

electrically conductive pads 100 and attaching the membrane to the land grid array 400 (see figure 1. The pads 100 permitting electrical connection between the land grid array and an IC device that is electrically coupled to LGD 400 (see col.4, line 3, 400 part of a semiconductor package not shown).

Though in the specifics of his invention Sinsheimer et references Ball Grid Array (BGA) devices Sinsheimer et al teaches in col. 4 that his device has obvious relationship to grid array devices such as land grid arrays (LGA).

With regard to claim 40, said membrane is formed of polyimide (see col. 3, last line) and pads are incorporated using a variety of electroforming techniques, which would obviously include well known techniques such as flexible circuit technology.

Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sinsheimer et al. in view of Bakewell.

With regard to claim, 41 col.4 of Sinsheimer et al teaches that pads may be incorporated into said membrane with techniques taught in patent no: 4, 425, 403 (Bakewell) which Sinsheimer et al incorporates by reference and which teaches using the technique of laminating the polymer film to a sheet of conductive material?

Claims 1,39-41 is rejected

Claims 9, 30, 31, 32, 33, 34, 42-47 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Claims 35-38, 48-51 are considered allowable over the prior art of record.

PTO-1449 contains semiconductor devices with membranes.

Applicant's arguments rendered 10-2-06 have been considered but are considered moot in view of new grounds of rejection.

Any inquiry concerning this communication should be directed to S. V. Clark at telephone number (571) 272-1725.

A handwritten signature in black ink, appearing to read 'S. V. Clark', with a long horizontal flourish extending to the right.

S. V. Clark
Primary Examiner
Art Unit 2823

December 21, 2006